ICT in higher education: policy perspectives

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Introduction

Information and Communication Technology (ICT) is bringing changes in societies throughout the world - often, but not always, for the better. One thing that cannot be denied is the differential impact that ICT has upon various groups within society, with younger and more affluent people likely to have greater access to technologies and to make use of them for a wider range of purposes than others. In particular, mobile phones, the Internet and social media have been associated with significant social changes over the last 15-20 years.

Just as in the wider society, ICT can and does impact on Higher Education throughout the world. It can have influence in at least 3 main areas of activity: administration, research and teaching & learning. This brief presentation does not allow time to concentrate on all three of these; I will focus on ICT for teaching & learning, as this is probably the least well-understood area of activity. However, from the outset I must declare my position. While accepting that technology influences changes in society, I will argue against *technological determinism*, by which I mean the view that technological developments are the central determinants of social change – what makes things happen – rather than individuals and social contexts shaping the ways in which technological tools are used.

Fundamental to the effective educational deployment of technology is an approach that should be informed by inquiry and evidence rather than assertions and hyperbole. Have rigorous studies been undertaken to evaluate the impact of ICT for particular educational purposes? The evidence considered must be relevant and derived from appropriate sources: just because a technology can add value in one particular context does not mean that it can be applied successfully in others. Inquiry and evidence must be related to the nature of teaching and learning processes and outcomes, not technology-led with a focus on specific technologies or applications. Unfortunately, fashion and novelty often dictate that a technology-led focus prevails, despite the fact that educational issues tend to be more long-lasting than ICT artefacts. A kind of collective amnesia seems to prevent decision-makers and practitioners from taking account of lessons learned from research into the use of educational media conducted over many decades.

Access

One factor that influences most of the others is **access to technology**, which can affect HE institutions in different ways. It is only right that this be considered in terms of the implications for each individual institution. For example, some universities attempt to *provide* student access to ICT equipment by maintaining 'computer labs' or something similar. Some universities *require* access for certain

courses, but not for all. Some institutions *expect* students to provide their own equipment, but make access available to an institutional 'learning environment' or similar system requiring extensive infrastructure. Each of these has cost and support implications for the institution, its staff and its students. The investment required of all parties includes not only the costs associated with equipment, but also the time necessary to develop and maintain the systems, resources and skills necessary to achieve the desired benefits (Laurillard, 2006).

This can create policy dilemmas for distance teaching universities, particularly those with a remit to widen access and participation. Targeting potential students who have been 'hard to reach' becomes even more difficult when they are further disadvantaged by poor access to ICT. The digital divide, between those that have good access to ICT and those who don't, requires constant monitoring to inform policy making.

Clarifying Institutional Aims and Goals

Since the 1990s there has been considerable growth in the adoption of ICT within higher education. It is often taken for granted that technologies can 'enhance learning' and the term 'Technology Enhanced Learning' (TEL) is increasingly being used in the UK, Europe and other parts of the world. However, it is rare to find explicit statements about what this actually means. But we should be asking *what* precisely will be enhanced when technology is used for teaching and learning and *how* will enhancement be achieved? Is the enhancement concerned with

- increasing technology use?
- improving the circumstances/environment in which educational activities are undertaken?
- improving teaching practices?
- improving (quantitatively and/or qualitatively) student learning outcomes?

However, the adoption of ICT should never be viewed as a means of reducing institutional expenditure. Although costs can probably be reduced in certain administrative transactions, the overall financial commitment is likely to increase.

Many campus-based universities in western countries now offer some courses for distance learners, often seeking enrolments from international students. However, it still seems to be the case that ICT is used mainly by university teachers to *replicate* and *supplement* existing teaching practices rather than to transform educational processes. The potential for ICT to help bring about qualitative changes in *how* and *what* students learn remains largely unexploited.

Learning

I turn now to a discuss some of the implications of the increased use of ICT by learners.

A 'Net Generation'?

Much has been written in recent times about generational differences with regard to using ICT. Terms such as 'Digital Natives' and 'Net Generation' have been used to describe young people who have grown up in the age of digital technologies and are presumed to have greater familiarity with using a range of technologies. Claims have been made that higher education needs a radical overhaul to enable the needs of the new digital generation to be met. However, those assertions were not founded on plausible evidence. Recent studies conducted in several technology-rich western countries (for example Helsper and Eynon, 2009; Jones *et al*, 2010; Kennedy *et al*, 2008) not only fail to support those claims, but indicate that there are considerable differences between *technical skills and competency* (which young people do tend to possess) and the *intellectual skills* necessary for effective use of ICT in educational contexts (which they do not).

Young people entering higher education might use a search engine like Google™ on a regular basis to find information or resources about a topic of interest, but they usually lack the evaluative skills to select the most trustworthy and appropriate sources for their particular purpose. New students often have very restricted expectations about how ICT might contribute to their learning at university.

> *We cannot assume that being a member of the 'Net Generation' is synonymous with knowing how to employ technology based tools strategically to optimise learning experiences in university settings* (Kennedy, *et al*, 2008, 117-18).

Universities cannot assume that their students already possess the necessary intellectual skills for effective use of ICT. They need to ensure that their academic programmes help students to develop the necessary approaches to using technologies and tools.

Assessment and plagiarism

Growth in use of ICT has increased the potential for plagiarism among students. The 'copy and paste' facility makes it easy for students to assemble an assignment from a variety of sources, while sophisticated search engines make it easy to locate sources from around the world. There are two main forms of plagiarism. The first involves a *deliberate* intention by somebody to pass off the work of other people as if it were their own. This is observed when students submit assignments that have, to some extent, been written by somebody else. In the second form, the intention is not so deliberate. Students might include elements of other people's work in their assignments, not because they were trying to pretend it was their own, but because they failed to understand the accepted academic practices relating to acknowledging and referencing the work of others.

At an institutional level, two main approaches to minimising plagiarism and cheating can be adopted. The first involves measures to detect and deal with inappropriate behaviour by students in their assessed work. Many universities now use software to scrutinise the students' assignments to detect evidence of plagiarism. The second approach addresses the causes of the problem by making students more aware of

what is expected of them and by designing assessment tasks that increase students' personal involvement and rely less on the simple reproduction of course materials and resources. Guidance is available to help teachers design assessment tasks that reduce the likelihood of plagiarism (e.g. Carroll, 2007; McDowell and Brown, undated).

Qualitative improvements in learning

Despite ongoing debates about the outcomes of higher education, certain themes remain fairly constant. ICT can contribute to these, and other, developmental goals:

- Students should develop and deepen their knowledge and understanding of their chosen subject or discipline. This is not simply a matter of *knowing more* (facts, principles, procedures, etc.), but of *knowing differently* (more elaborate conceptions, theoretical understanding, etc.);
- Individuals develop their capacity to participate in a community of practice related to their discipline or profession;
- Students should have 'learned how to learn', developing greater self-direction and the capacity – and aspiration – to continue learning throughout life. They should understand that knowledge is contested (differing perspectives) rather than absolute;
- Students should have developed a range of 'generic' or 'life' skills. For example, critical thinking and discernment, coping with uncertainty, ability to communicate appropriately with different audiences, working effectively with other people, capacity for reflection upon practice, etc.

Teaching

Factors influencing how teachers employ ICT

The factors that determine how university teachers employ ICT to change their teaching practices and/or the learning practices of their students are many and complex. Evidence from studies into how ICT can enhance or transform educational processes constitutes only one influence upon teachers. Some others, often more pervasive, include:

- Individual differences in teachers' attitudes to the adoption of innovations;
- Individual differences in teachers' conceptions of and approaches to teaching;
- The established departmental / faculty / institutional ethos and ways of working; and
- Competing demands of discipline-based research and administration.

There is still much to be learned about its effective educational contribution. A recent review of research in this field (Price and Kirkwood, 2011) highlighted variations in both the purpose of TEL interventions and the ways that *enhancement* had been conceived. Underpinning this is a conflation of two distinct aims:

- changes in the *means* through which university teaching happens; and
- changes in *how* university teachers teach and learners learn.

Many ICT interventions concentrate on the *means*: replicating and supplementing existing teaching practices. Fewer tackle the second aim – *how* – although it is increasingly important to re-appraise university teaching to better prepare learners to cope with the demands upon graduates in the twenty-first century. The ways in which academics conceptualise teaching and learning with technology have significant and interrelated impacts upon their students' experience of learning (Kirkwood and Price, 2012). The potential of ICT to transform teaching and learning practices is only likely to be achieved is to develop HE teachers' own understanding of their teaching and its impact upon students.

Responding to educational rather than to technological imperatives

The lack of precision and clarity about ICT and educational processes suggests that technology-led conceptions are predominant among university teachers and policy-makers. Too much emphasis is given to technology (rather than teaching and/or learning) as the *object* of attention and as the *agent* of change. Teachers often seem to ask "What can I use this technology or tool for?" rather than "How can I enable my students to achieve the desired or necessary learning outcomes?" or "What forms of participation or practice are enabled for learning?"

Just as the content of a book can take many different forms and can be used in a variety of ways for various purposes, so too can most technologies and digital tools support varying patterns of use and activity types. For example, in educational contexts a blog might be used by individual students for their reflections on topics of interest or on their personal and educational development. However, the same tool could just as easily be used as a resource for sharing ideas among all the students taking a module. If a teacher uses PowerPoint or a video-enhanced podcast to deliver a lecture, it does not make it anything other than a lecture. ICT might make the lecture accessible to learners 'any time, anywhere', but does not change it into something different. In any educational context, the technology is secondary to the main object of attention, i.e. the educational purpose and activity that is being enabled or supported.

Unfortunately, it is not uncommon to find expressions of *technology as agent* in the research literature. These fail to value the professional role of the academic teacher as originator and designer of educational activities that promote the development of learning. Technological determinism endorses the notion that using technology for teaching will *in and of itself* lead to enhanced or transformed educational practices. However, ICT projects that put technology first often result in disappointment for both teachers and their students.

Professional Development

To senior managers and policy makers, it may seem that enabling academic staff to make appropriate use of ICT for teaching and learning is a technical matter. After raising teachers' awareness about the possibilities offered by new technologies and tools, technical assistance might be necessary to get them up to speed in adopting new practices. Professional development activities are more likely to be concerned

with ‘how to’ issues rather than with explorations of ‘why?’ or ‘for what purpose or goal?’ (Price & Kirkwood, 2008). As pedagogical issues and models of learning are infrequently addressed in an explicit manner, the validity and appropriateness of such a technical focus has been questioned (e.g. Benson & Brack, 2009; Oliver & Conole, 2003). If the adequacy of existing beliefs and practices remain unchallenged, technology is unlikely to be used in ways that are not consistent with and supportive of a teacher’s current ways of teaching. Too often ICT is viewed mainly as a means of delivering information.

A deeper examination of the problem shows that even if pedagogic issues are considered first, the adoption of ICT might make little difference to student outcomes if teaching is not reconceptualised in relation to technology use. More fundamental issues are related to beliefs about teaching and whether the teacher is engaged in passing on information or transforming a learner.

A teacher’s conception of teaching can influence their expectations of and engagement with professional development activities. Nicholls (2005, 621) reported that in her study of new university lecturers

> *Those who associated teaching with the transmission of knowledge, where students had to acquire a well-defined body of knowledge, were most anxious to develop more sophisticated skills to facilitate the transmission. Those who associated teaching with facilitating learning were anxious to understand and conceptualize the learning process, to help their students.*

Transmissive teaching beliefs permeate the sector and often determine the teaching context in departments or institutions. This is often evident in professional development programmes that institutions adopt that focus primarily on teaching ‘how to’ approaches with technologies as opposed to engaging activities that support teachers to reflect on and reconsider heir deeply held beliefs about teaching. A more holistic approach to academic professional development is imperative for effective innovations.

Conclusions

ICT has the potential to enhance and transform higher education in many ways. Unfortunately, too few educators have the vision, imagination and drive to realise that potential for the benefit of their students; too many constrain themselves within models of teaching and learning that are no longer sufficient or appropriate.

University policy makers need to be clear about the aims and purposes of using ICT in support of teaching and learning. Achieving effective innovation has implications for many aspects of institutional culture, including:

- policies for infrastructure and technical support;
- policies and strategies relating to student assessment;
- policies for developing the *digital literacy* of students appropriate for higher education;
- policies and strategies for the professional development of academic staff;

- the research and scholarship agenda;
- policies for promoting and rewarding scholarly activities relating to learning and teaching with ICT.

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